

Document de travail du LEM / Discussion paper LEM  
2017- 22 *version révisée*

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# Is strategic optimism good for long term policies?\*

Mamadou BOUKARI<sup>†</sup>

## Abstract

In this paper, I analyze the influence of strategic optimism on political myopia with respect to decisions on the budget composition. First, I show in a political economy model that the impact of optimism bias, defined as the difference between the incumbent's subjective and the objective probability of reelection, on the capital to current expenditure ratio is predicted to be negative i.e., strategic optimism increases short-term bias. This result is mitigated by strategic pessimism. Second, I test empirically this link by basing upon data from French departments and proxying optimism bias with budget forecast errors. The results of dynamic panel estimations confirm that optimistic revenue forecasts significantly tend to distort the budget composition in favor of current expenditures. This finding is shown to hold for different estimation approaches.

*JEL Classification:* D72; D78; H68

*Keywords:* Elections, Polarization, Short term bias, Optimism.

## 1 Introduction

This paper addresses the topic of politicians' rational limitations, in particular optimism bias, and its consequences for myopia in budget composition choices. An optimistic bias is commonly defined as the mistaken belief that favorable future events are more likely than they actually are, and that people have more precise knowledge about future events than they actually have (Hackbarth, 2008).

Optimism is found to be at the root of many economic phenomena (Puri and Robinson, 2007). For instance, optimism is important for financial intermediation (Coval and Thakor, 2005); it can affect corporate financial and accounting decisions (Heaton (2002); Hackbarth (2008); Ashton and Roberts (2011), and others); it can inflate security prices in the presence of short-sale constraints (Chen et al., 2003); it can be an important

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\*I thank Aurelie Cassette, Etienne Farvaque, Hubert Jayet, Jérôme Héricourt and David Stadelmann and participants in Lille Workshop on Political Economy (May, 2017) for helpful comments.

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component of utility (Brunnermeier and Parker, 2005); and it can lead to over- and under-reaction in stock returns (Barberis et al., 1998). Yet, in political economy, there is relatively little direct evidence on the effect of optimism bias on political decisions.

The behavioral political economy approach may be useful in the process of solving politicians' behaviors, however. Indeed, political economy is one of the fields particularly likely to benefit from applying behavioral economics insights (Schnellenbach and Schu- bert, 2015). In this context, the purpose of this paper is to study the impact of optimism bias on the budget structure, i.e., the allocation of public resources between capital and current expenditures.

The first objective is to distinguish between two types of optimism: strategic optimism and dispositional optimism. For the strategic optimism, the literature on political economy of fiscal forecasting show that tax revenues have been biased and moreover optimistically biased. In fact, empirical studies show that budget forecasts are distorted for political and/or institutional reasons (see, e.g., Bischoff and Gohout, 2010; Chatagny, 2015; Jochimsen and Lehmann, 2017; Benito et al., 2015).

Another illustration of strategic optimism comes from the analysis of campaign discourses. Reagan's "*Morning in America*" campaign theme is an obvious example. Arthur C. Brooks wrote in the *New York Times* that: "Reagan's success came from his sunny optimism"<sup>1</sup>. He adds that "Reagan was Wordsworth's happy warrior whose high endeavors are an inward light that makes the path before him always bright." Likewise, in 2008, Obama's motto was "*Yes, We Can*". These three words simply call for hope, traducing optimism.

These two examples are in line with the political convention according to which voters prefer candidates who they perceive to be "sunny optimists" (Malhotra and Margalit, 2014). For instance, *The New York Times* claimed that "one axiom of politics is that the optimistic candidate wins . . ." (Stolberg, 2011). This conventional wisdom has also received some scholarly support. Zullo and Seligman (1990) conducted an extensive textual analysis of over 80 years of presidential candidates' election speeches and found that the candidate who was more of a "pessimistic ruminator" lost in the large majority of the cases.

Malhotra and Margalit (2014) develop a theoretical framework of how expectation setting affects voters' retrospective evaluations of incumbent performance. They find that in domains where politicians have practical authority, or direct influence over outcomes, setting high expectations incurs a cost in public support if the projected outcome is not attained. The same is true in domains where politicians have theoretical authority, or limited influence, but where expectation setting sends a signal about the leader's judgement. However, in domains where politicians have neither practical nor theoretical authority, setting high expectations is unambiguously beneficial, implying that optimism

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<sup>1</sup><https://www.nytimes.com/2015/07/26/opinion/sunday/arthur-c-brooks-we-need-optimists.html>.

is valued by voters as a personality disposition. This intrinsic trait is the one I refer to as dispositional optimism.

The second objective is to show that the implications of optimism bias for decision-making form the basis of another rationale for political decisions, the short-term bias being the first one. For instance, the literature on Political Budget Cycles (PBCs) shows that politicians tend to be short-sighted. Indeed, economists and political scientists alike have long been intrigued by the idea that elections, while providing a fundamental mechanism of accountability, may at the same time induce a short-term bias (Bonfiglioli and Gancia, 2013).

The short-term bias refers to policy inefficiencies (low capital accumulation, low growth, high deficit or debt...) due to political frictions. In fact, the electoral pressure leads politicians to undertake myopic policies either to increase their chances of reelection (Rogoff, 1990) or to tie the hands of their potential successor (Tabellini and Alesina, 1990; Persson and Svensson, 1989). Therefore, policy myopia is determined by the incumbent policy maker's choices with respect to fiscal policy. In Rogoff's (1990) seminal article, politicians take advantage of information asymmetry and distort the budget composition in favor of consumption expenditures. Hence, one observes a decline in the capital to current expenditure ratio (e.g., Katsimi and Sarantides, 2012; Gupta et al., 2016).

Using the concept of optimal expectations (Brunnermeier and Parker, 2005), I establish a link between optimism bias and the budget composition. The main prediction is that strategic optimism increases the short-term bias. This effect is mitigated by strategic pessimism. These predictions are tested using data from 95 metropolitan French departments over the period running from 2004 to 2015. The results are consistent with the theory under alternative estimation strategies.

This paper contributes to the literature that expands the concept of optimism bias to models and empirical analysis of political decisions. To the best of my knowledge, it is the first attempt to pin down on the theoretical side the relationship between strategic optimism and the budget structure. From the normative point of view, the result of this paper brings another argument to the advocates of the golden rule of fiscal forecasting which require policymakers to be conservative when making budget forecasts.

In the next section, the theoretical model is laid out to examine the impact of optimism bias on budget composition. Section 3 describes the institutional context and data and tests empirically the relationship established between the two concepts. Section 5 concludes.

## 2 The model

In this section, I present the model from which I derive the impact of optimism bias on the budget structure. I build on the concept of optimal beliefs à la Brunnermeier and

Parker (2005). Optimal expectations is a strategic model of choice under uncertainty where beliefs are posited to be endogenous. Observed choice is the result of equilibrium in which beliefs are chosen to resolve a trade-off between a standard instrumental payoff and some notion of psychologically based belief utility.<sup>2</sup>

## 2.1 The economic environment

### Voters' preferences

I consider a simple two-period ( $t = 1, 2$ ) economy populated with two groups of citizen-voters ( $i = R, L$ ). Each member of a group  $i$  is small and has the same preferences for public goods within the group. The representative agent in group  $i$  derives utility from the two public goods ( $g; f$ ) with a bias towards one of them. Abstracting from private consumption, I thus write her utility as:

$$V_t^i = V(g_t^i, f_t^i) \quad (1)$$

where  $f_t$  and  $g_t$  are two different public goods provided by the government.  $V(\cdot)$  is a concave and twice continuously differentiable utility function.

Let us note  $k = \frac{g}{f}$  the ratio of type  $g$  to type  $f$  expenditures. From equation 1, one has:

$$V\left(1; \frac{g^i}{f^i}\right) \equiv v(k) \quad (2)$$

Equation 2 says that the utility of the representative citizen-voter depends on the ratio of the public good  $g$  to  $f$  expenditures. Examples of different preferences about public goods among citizen-voters abound. One can think for example of Republicans preferring defense expenditures to social expenditures (see, e.g., Alesina and Ferrara, 2005). For the purpose of this paper, I consider  $f$  as public *consumption* services and  $g$  as public *production* services (that provide externalities to firm's capital). In other words,  $f$  can be seen as current expenditures and  $g$  as capital/investment expenditures. I note  $s = \{r, d\}$ , the two states of nature where state  $r$  corresponds to reelection, and state  $d$ , to defeat at election.

For simplicity, I assume that the representative citizen-voter has the logarithmic utility function  $v = \ln k$ . From the point of view of voters, the expected utility in the second period is:

$$v_t^E = \pi_r \ln k_{r,t} + \pi_d \ln k_{d,t} \quad (3)$$

where  $\pi_r$  is the objective probability of reelection and  $\pi_d$  the objective probability of defeat of the incumbent. How do voters decide to cast their votes? They use the incumbent's

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<sup>2</sup>The axiomatic foundation for this is provided by Caplin and Leahy (2001).

choices during the first period to learn about her preferences. Then, they decide to vote for her if their expected utility is greater than voting for an unknown challenger.

## Politician

Each period, a citizen-voter is elected to run the government and provide public goods. Thus, groups alternate in power via a democratic process, and election outcomes are uncertain. The degree of political stability (i.e., frequency of turnover) is determined in a voting equilibrium. After the first period, the incumbent policymaker may lose office to another one with a subjective probability ( $\hat{\pi}_d$ ). She stays in power with subjective probability  $\hat{\pi}_r$ .

Each of the two types of policymaker ( $R$  and  $L$ ) provides both types of public goods, but to differing degrees. That is, the two groups agree on the size of the government, but they disagree over the composition of expenditure. The intensity of such disagreements can be captured by the degree of polarization  $\alpha$ , which ranges from  $1/2$  to  $1$ .<sup>3</sup>  $\alpha = 1/2$  corresponds to an homogeneous society, while  $\alpha$  close to  $1$  is the situation of a highly polarized society. For simplicity,  $\alpha$  will be assimilated to the share of public good  $f$  in the budget structure.

In order to investigate the impact of the optimism bias on budget structure, I embed the incumbent's problem into the optimal expectations framework (see, Brunnermeier and Parker, 2005). In this framework, the information structure can be laid out by listing the timing of events:

1. At the beginning of period 1, the incumbent forms beliefs about her chances of reelection. Under the rational expectations hypothesis, beliefs would be given exogenously. In the optimal expectations framework, beliefs are not required to match objective probabilities.
2. Next, she decides how to allocate resources between the two public goods ( $f; g$ ).
3. Then, she experiences uncertainty resolution about her chances of being reelected. This occurs during the step of anticipation in which she experiences anticipatory utility, i.e., utility over optimism.
4. At the end of period 1, an election takes place where the incumbent runs against a randomly chosen challenger. The incumbent is reelected if she is supported by a majority of citizen-voters; otherwise the challenger takes office. Once the election results are published, the incumbent experiences outcome utility.

To sum up, the incumbent's problem is a two-stage decision making process. In the first stage, the incumbent forms beliefs considering optimal actions of second stage. In stage

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<sup>3</sup>See, e.g., Bohn (2007).

2, she chooses how to allocate public resources ( $T$ ) between current and capital goods. Therefore, she faces the following budget constraint:  $f_t + g_t = T_t$ .

In order to fully exploit the concept of optimal beliefs, I assume that the  $k$ -ratios can be assimilated to a complete set of Arrow-Debreu securities (see, e.g., Brunnermeier et al., 2007). In other words, the incumbent behaves like an investor who builds a portfolio in the first period and consumes the payoff from this portfolio in the second period; the gain being reelection and ego rent.

Considering the vote share as the price of a specific budget composition choice, I transform the budget constraint into:

$$(1 - \alpha)k_{r,t} + \alpha k_{d,t} \leq T_t \quad (4)$$

where  $k_s \geq 0$ .  $k_r$  is the composition index in case of reelection and  $k_d$  that of defeat.

## 2.2 Solution to the politician's problem

The structure described above is a sequential game of incomplete information. Therefore, the appropriate solution concept is a Perfect Bayesian Equilibrium (PBE)

Definition:

A PBE is a pair of first-period fiscal allocations, and a reelection rule such that the incumbent selects an optimal allocation given the reelection rule, voters' reelection rule is optimal given their beliefs about the type of the incumbent, and voters' beliefs are whenever possible updated according to Bayes's rule.

To pin down the set of equilibria, I follow Brunnermeier and Parker (2005). Hence, the incumbent's problem is solved by backward-induction. Therefore, in the first step, the incumbent chooses  $k$  so as to maximize the following expected utility (*anticipatory utility*) given her subjective belief of winning the upcoming election:

$$v_1 = \hat{\pi}_r \ln k_r + \hat{\pi}_d \ln k_d \quad (5)$$

subject to equation (4).

Given the properties of the  $v$  function, it is easy to see that this problem has closed form solutions. I thus write the following proposition:

**Proposition 1** (*Existence and Uniqueness of budget structures*) *Given the incumbent's subjective beliefs, optimal budget compositions exist and are unique:*

- $k_r^* = \frac{\hat{\pi}_r}{1-\alpha}$
- $k_d^* = \frac{\hat{\pi}_d}{\alpha}$



Proposition 1 links the budget index to the subjective perception of reelection/defeat and to the polarization index. In the political equilibrium, the optimal budget ratio will also depend on the objective probabilities. Thus, it is interesting to characterize the incumbent's optimal beliefs. Then, one could establish a link between optimism bias and budget composition.

## Optimal beliefs

In this subsection, I discuss how the presence of optimism bias might influence behavior, and therefore the decisions of policymakers. Therefore, it is important to characterize optimal beliefs.

As stated above, the incumbent faces uncertainty about her reelection. She may form beliefs<sup>4</sup> about it during her first term. If she is optimistic, she will savor her expected success during that period, but she faces the risk of being disappointed ex-post if she is defeated at the election, an outcome below her expectation. On the contrary, she could rather prefer to be pessimistic, thereby being depressed during the first term, but with the potential benefit to be reelected, yielding much rejoice ex-post.

Here, I reach the second step of resolution of the incumbent maximization problem. The politician's objective is to maximize a psychological expected utility, i.e., the sum of her anticipatory utility ( $v_1$ ) and the expected utility of voters ( $v^E$ ). Then, her beliefs maximize  $\frac{1}{2}E[v_1 + v_2]$  subject to  $\sum_{s=\{r,d\}} \hat{\pi}_s = 1$ .

Specifically, the objective function of the incumbent is:

$$\max W = \hat{\pi}_r \ln k_r^*(\hat{\pi}_r) + \hat{\pi}_d \ln k_d^*(\hat{\pi}_d) + \pi_r \ln k_r^*(\hat{\pi}_r) + \pi_d \ln k_d^*(\hat{\pi}_d) \quad (6)$$

$$\text{subject to: } 1 - \hat{\pi}_r - \hat{\pi}_d = 0;$$

Note that the voters' expected utility depends on the optimal budget structure chosen by the incumbent. Hence, optimal beliefs maximize the Lagrangian:

$$\mathcal{L} = \hat{\pi}_r \ln k_r^*(\hat{\pi}_r) + \hat{\pi}_d \ln k_d^*(\hat{\pi}_d) + \pi_r \ln k_r^*(\hat{\pi}_r) + \pi_d \ln k_d^*(\hat{\pi}_d) + \mu(1 - \hat{\pi}_r - \hat{\pi}_d) \quad (7)$$

The first order conditions are:

$$\frac{\partial \mathcal{L}}{\partial \hat{\pi}_r} = \ln \left( \frac{\hat{\pi}_r}{1 - \alpha} \right) + 1 + \frac{\pi_r}{\hat{\pi}_r} - \mu = 0 \quad (8a)$$

$$\frac{\partial \mathcal{L}}{\partial \hat{\pi}_d} = \ln \left( \frac{\hat{\pi}_d}{\alpha} \right) + 1 + \frac{\pi_d}{\hat{\pi}_d} - \mu = 0 \quad (8b)$$

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<sup>4</sup>Beliefs can be optimistic or pessimistic. Pessimism is simply the inverse of optimism - a human who is more optimistic is simultaneously less pessimistic.

The combination of equations 8a and 8b yields:

$$\ln\left(\frac{\alpha}{1-\alpha}\right) = \frac{\pi_d}{\hat{\pi}_d} - \frac{\pi_r}{\hat{\pi}_r} - \ln\left(\frac{\hat{\pi}_r}{\hat{\pi}_d}\right) \Rightarrow \ln\left(\frac{1}{k}\right) = \frac{\pi_d}{\hat{\pi}_d} - \frac{\pi_r}{\hat{\pi}_r} - \ln\left(\frac{\hat{\pi}_r}{\hat{\pi}_d}\right)$$

Recall that  $\alpha$  is the share of expenditures on public good  $f$  and  $1-\alpha$ , public good  $g$ 's share in the budget structure. As  $k = \frac{g}{f}$ , it follows that  $k = \frac{1-\alpha}{\alpha}$ . Hence, from the preceding combination, one derives:

$$k^* = \frac{\hat{\pi}_r}{\hat{\pi}_d} * \exp\left(\frac{\pi_r}{\hat{\pi}_r} - \frac{\pi_d}{\hat{\pi}_d}\right)$$

Using the property that probabilities sums to 1 ( $\pi_r + \pi_d = 1$ ;  $\hat{\pi}_r + \hat{\pi}_d = 1$ ), one obtains the expression in (9).

$$k^* = \frac{\hat{\pi}_r}{\hat{\pi}_d} * \exp\left(\frac{\pi_r - \hat{\pi}_r}{\hat{\pi}_r(1 - \hat{\pi}_r)}\right) \quad (9)$$

Equation 9 indicates that the ratio  $k$  depends on the difference between the objective probability of reelection and the subjective one. It also depends on the ratio of the subjective reelection probability and that of defeat. Let us denote  $\varepsilon \equiv \pi_r - \hat{\pi}_r$ . Then, the following definition can be given:

$$\text{If } \begin{cases} \varepsilon < 0 \\ \varepsilon = 0 \\ \varepsilon > 0 \end{cases} \iff \text{the beliefs are } \begin{cases} \text{optimistic} \\ \text{rational} \\ \text{pessimistic} \end{cases} \quad (10)$$

On the basis of this notation, I rewrite the equation (9) as:

$$k^* = \frac{\pi_r - \varepsilon}{\hat{\pi}_d} * \exp\left(\frac{\varepsilon}{\hat{\pi}_r(1 - \hat{\pi}_r)}\right) \quad (11)$$

Derivating  $k^*$  over  $\varepsilon$  yields:

$$\frac{dk^*}{d\varepsilon} = \frac{1}{\hat{\pi}_d} * \left[-1 + \frac{\pi_r - \varepsilon}{\hat{\pi}_d}\right] * \exp\left(\frac{\varepsilon}{\hat{\pi}_r(1 - \hat{\pi}_r)}\right) \quad (12)$$

Then, there is a threshold under which  $\frac{dk^*}{d\varepsilon} > 0$  and  $\frac{dk^*}{d\varepsilon} < 0$  above. This threshold is such as  $\pi_r = \hat{\pi}_r(1 - \hat{\pi}_r) \equiv E(\hat{\pi}_r)$ . Hence, the impact of the incumbent's beliefs on the budget ratio is summarized in the proposition 2:

**Proposition 2** *There is a negative link between optimal beliefs and the budget composition index measured by the ratio of capital to current expenditures.*

$$\begin{cases} \frac{dk^*}{d\varepsilon} > 0 & ; & \varepsilon < 0 \\ \frac{dk^*}{d\varepsilon} < 0 & ; & \varepsilon > 0 \end{cases}$$

Proposition 2 states the core result of the paper. Optimistic revenue forecasts decrease the ratio of capital to current expenditure whilst pessimistic forecasts increase it. Hence, optimism bias tend to increase the short-term bias.

### 3 Empirical evidence

In this section, I present empirical evidence supporting the results presented above, using data from French departments.

#### 3.1 Legal context of French departments

The French institutional setting is a four-tier system comprising the central government, 18 regions, 101 departments, and about 36,000 municipalities. In this study I focus on metropolitan France which is divided into 96 departments<sup>5</sup>. A department is composed of several counties (*cantons*). In counties, voters elect their representatives at the General Council<sup>6</sup>. Indeed, French departments are governed by the departmental council.

The councilors are nominated through democratic elections for six years. Before 2015, these elections took place once every three years (generally in March) in which half of the departmental council was elected in each department. In the context of a multi-party-system, a two-round majority vote is used. To be elected in the first round, a candidate must get at least half of the votes plus one, and a number of votes equal to at least 25% of the registered voters. To be a candidate in the second round, it is necessary to have obtained in the first round a number of votes equal to at least 10% of the registered voters. However, if only one candidate clears this threshold, the one ranked second can remain a candidate. The candidate who gets the biggest number of votes in the second round is elected. After every election, the departmental council elects a president. Since 2015, the electoral rule has changed, to a bi-nominal majority vote with two rounds. Every county is represented by a “twin-ticket” (“binôme” in French) of a man and a woman, and the whole departmental council is to be elected every six years. To be elected in the first round, the binôme must obtain at least half of the votes plus one, and a number of votes equal to at least 25 per cent of the registered voters. If a second round is necessary, all the binômes with at least 12.5% of registered voters can compete. The reelection rule is as in the previous paragraph.

The decentralization Act of 1982 (and afterwards the Act of 2003) provided the departmental council with new competencies and a relative autonomy. The President of

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<sup>5</sup>Given the particularity of Paris as municipality and department, I exclude it from the analysis.

<sup>6</sup>Since the reform of 2013, General Councils are renamed into departmental councils.

the departmental Council prepares and implements the department’s budget. The departmental resources rely in part on central government transfers (about 40%) and on own resources such as local taxes. In terms of competencies, French departments are responsible for the management of a number of social and welfare allowances, of junior high school (*collège*) buildings and technical staff, of local roads, school and rural buses, and for a contribution to municipal infrastructures.

### 3.2 Data and variables

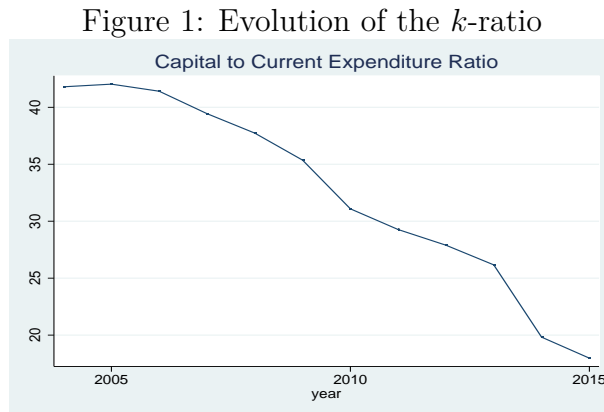
The aim of this subsection is to test the implication of proposition 2: the positive effect of optimism bias ( $\varepsilon$ ) on the budget composition index ( $k$ ). The first challenge is thus the measurement of these two concepts. For this purpose, I take advantage of the Metropolitan French departments data over the period from 2004 to 2015. This data is suitable for the analysis conducted here because of at least two reasons. First, the institutional context of departments does not vary during the sample period. Second, budget forecasts have been optimistic as regards total revenue (see Appendix B1). This provides a proxy for the independent variable of interest (*Belief*).

Following the existing literature on determinants of political budget cycles and the discussion above, I write the structural form of the model as:

$$k = m(\varepsilon, X) \tag{13}$$

where  $\varepsilon$  is an indicator of optimism bias and  $X$  is a vector of other determinants of budget composition. Optimism bias corresponds to negative values of  $\varepsilon$ .

The budget composition index, measured as the ratio of capital to current expenditures, is used as the dependent variable in the regression. Figure 1 displays the evolution of the mean of the capital to current expenditure ratio<sup>7</sup>. It clearly shows a downward-sloping trend of this budget composition index in French departments over the sample period.



<sup>7</sup>Figure C.1 in the Appendix displays the evolution of  $k$  by department.

Three sets of independent variables are used in the regression: a behavioral determinant, political determinants and economic and demographic determinants. The behavioral factor is the difference between the incumbent’s subjective probability of reelection and the objective probability of reelection (*Belief*). This variable is introduced to capture the impact of optimism bias on the budget structure. It is measured through a proxy which is the total revenue percent forecast error. Despite the fact that budget forecasts are subject to strategic manipulation, there is a part of budget forecast errors which is due to cognitive biases. Notice that in the theoretical model above,  $\varepsilon \equiv PFE$ ; where *PFE* is the Percent Forecast Error of Total revenue. Therefore, I write:

$$Belief_{i,t} = \varepsilon_{i,t} = \frac{(A_{i,t} - F_{i,t}) * 100}{A_{i,t}} \quad (14)$$

where *A* denote the actual revenue and *F* its forecasted value.

The average value of the PFE-Total revenue is negative (−3.26%), indicating that revenue forecasts have been optimistic. Hence, I consider this variable as an indicator of strategic optimism.

The political determinants of budget structure are electoral cycle, party color, number of terms in office and the alignment with the central government. The economic and demographic variables are fiscal pressure, regional GDP growth, population density, and population growth. Table A.1 in the appendix describes the variables and data sources whilst table B.2 provides descriptive statistics on different variables in the model.

Political variables include dummies to account for the electoral cycle (the before, after and election year), terms in office, same party as the central government (*government party*) and left wing. The variable “terms in office” is the number of terms the president of the council has served. On average, presidents of councils have been in office for one term.

The variable “left wing” indicates that the president of departmental council belongs to the left-wing party. Therefore, it helps to control for the partisan effect on the budget composition. 43% of Presidents of departmental councils belongs to the same party as the French President. The variable *government party* controls for the political alignment of the department.

The variable “fiscal pressure” measures the financial situation of the department. It is computed as the ratio of budget balance to total revenue. The “unemployment rate” is relatively high, ranging from 4.2% to 16%, with a mean equal to 9%. On average, the population has grown by 0.68% in French departments while the regional GDP has grown by 1.87% over the period under review.

### 3.3 Model specification

The estimated panel data model has the following structure:

$$k_{i,t} = \beta_0 + \beta_1 k_{i,t-1} + \beta_2 Belief_{i,t} + \gamma X + \xi_i + \lambda_t + \varepsilon_{i,t} \quad (15)$$

where  $X$  is a vector of control variables,  $\gamma$  the vector of coefficients.  $\beta_2$  is expected to be positive (proposition 2).

The above discussed independent variables have both temporal and spatial variations. There are determinants which vary only in one dimension. The time-invariant and department-specific unobservable explanatory variables like institutions, historical factors, and geographical features need to be controlled for as there is ample evidence suggesting that these factors play significant role in determining expenditure requirements of an economy. Similarly, over the years, the central government of France has implemented various decentralization policies that affect the expenditures of departments. The attempts made at the central level will have harmonious effects across all the departments. The impact of such policies, department-invariant and time-specific, also needs to be incorporated in the model. Hence,  $\xi_i$ , the department fixed effect and  $\lambda_t$ , time fixed effect are introduced in the equation.

Fiscal variables are seen to show inertia. Hence, the lag of the dependent variable is used as an independent variable in the regression to control for autocorrelation. Given the short time dimension of the study, Nickell (1981) pointed that the dependent variable's coefficient is biased due to the correlation between the fixed effects and the lagged dependent variable. An appropriate strategy of estimation is needed.

## 4 Results

### 4.1 Baseline results

Table 1 on the next page reports the results of the main regressions. The first three columns display the results of the fixed-effect estimator. In columns (1) and (2), the equation is estimated excluding the lagged dependent variable and with robust standard errors clustered at the department level. The regressions are able to explain about 58% of the variation in the budget composition index. Notice that in columns (2), (3), and (6) I introduce three dummy variables to capture the electoral cycles. These variables take the value of 1 in before, election and after election year and zero otherwise. These dummies stand also for the time fixed effects. In addition, the lagged dependent variable is included in the specifications in columns (3) to (7). In order to cope with the Nickell(1981) bias, I use the bias-corrected least-squares dummy variable (LSDVC) estimator developed by

Bruno (2005) and designed for dynamic panel data models.<sup>8</sup>

Table 1: Main regression results

|                       | (1)                  | (2)                  | (3)                   | (4)                   | (5)                   | (6)                   | (7)                   |
|-----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                       | FE                   | FE                   | FE                    | BC-LSDV               | BC-LSDV               | BC-LSDV               | BC-LSDV               |
| Lagged k              |                      |                      | 0.618***<br>(0.0414)  | 0.791***<br>(0.0192)  | 0.789***<br>(0.0205)  | 0.897***<br>(0.0495)  | 0.860***<br>(0.0196)  |
| Belief                | 0.334***<br>(0.0685) | 0.338***<br>(0.0660) | 0.226***<br>(0.0537)  | 0.232***<br>(0.0398)  | 0.227***<br>(0.0398)  | 0.207***<br>(0.0619)  | -0.190***<br>(0.0503) |
| Terms in Office       | -0.0705<br>(0.286)   | -0.239<br>(0.281)    | -0.0117<br>(0.176)    | 0.0187<br>(0.195)     | 0.0697<br>(0.193)     | -0.264<br>(0.291)     | 0.232<br>(0.196)      |
| Fiscal Pressure       | -0.154*<br>(0.0777)  | -0.0608<br>(0.0821)  | -0.252***<br>(0.0562) | -0.255***<br>(0.0596) | -0.248***<br>(0.0613) | -0.336***<br>(0.0910) | -0.290***<br>(0.0602) |
| Unemployment rate     | -6.367***<br>(0.400) | -5.987***<br>(0.409) | -2.539***<br>(0.315)  | -1.831***<br>(0.197)  | -1.750***<br>(0.213)  | -0.696<br>(0.510)     | -1.771***<br>(0.212)  |
| Regional GDP growth   | 1.312***<br>(0.0986) | 1.311***<br>(0.0967) | 0.663***<br>(0.0889)  | 0.414***<br>(0.0753)  | 0.470***<br>(0.0796)  | 0.266**<br>(0.135)    | 0.551***<br>(0.0780)  |
| Government party      | 0.0811<br>(0.820)    | -0.266<br>(0.771)    | -0.257<br>(0.509)     | -0.223<br>(0.466)     | -0.205<br>(0.465)     | 0.508<br>(0.872)      | -0.376<br>(0.458)     |
| Population growth     | 0.537**<br>(0.219)   | 1.378***<br>(0.278)  | 0.315<br>(0.234)      | -0.00541<br>(0.176)   | 0.0620<br>(0.208)     | 0.129<br>(0.320)      | -0.0420<br>(0.204)    |
| Left wing             | -1.022<br>(1.712)    | -1.985<br>(1.698)    | -1.031<br>(1.232)     | -0.687<br>(0.925)     | -0.626<br>(0.908)     | -0.681<br>(1.072)     | -0.152<br>(0.898)     |
| Year before elections |                      | 0.130<br>(0.559)     | -0.696<br>(0.464)     |                       | -0.525<br>(0.494)     | 0.750<br>(0.893)      | -0.927*<br>(0.497)    |
| Election year         |                      | -4.042***<br>(0.446) | -0.660*<br>(0.384)    |                       | 0.324<br>(0.536)      | 1.083*<br>(0.638)     | 0.677<br>(0.538)      |
| Year after elections  |                      | -0.0990<br>(0.441)   | 0.552<br>(0.486)      |                       | 0.729*<br>(0.424)     | 1.770**<br>(0.710)    | 1.210***<br>(0.431)   |
| Observations          | 1045                 | 1045                 | 1045                  | 1045                  | 1045                  | 641                   | 306                   |
| Adjusted $R^2$        | 0.571                | 0.599                | 0.745                 |                       |                       |                       |                       |

Standard errors in parentheses. Significance levels: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

Notes: FE-Fixed Effect estimator, BC-LSDV: Bias Corrected Least Square Dummy Variables

Regarding the variable of interest (*Belief*), I note that its marginal effect is significantly positive in the first six columns. The positive effect means that, the optimism bias tends to reduce capital expenditures relative to current ones as predicted theoretically. This reinforces the tendency of decreased investment due to policy myopia. Hence, strategic optimism tend to increase short-term bias. In terms of impact, a one percentage increase in the degree of optimism tends to reduce the capital to current expenditure ratio by 0.22 to 0.33%.

<sup>8</sup>I choose the Blundell and Bond (1998) estimator as the initial estimator in which the instruments are collapsed as suggested by Roodman (2009). This procedure makes sure to avoid using invalid and too many instruments. I undertake 50 repetitions of the procedure to bootstrap the estimated standard errors (see Bruno (2005) for further details).

Notice that in column 6, only the negative values of the variable *Belief* are used whilst their positive values are considered in column 7. Interestingly, the coefficient of the variable *Belief* has a positive and negative signs respectively. This lends support to the theoretical prediction in proposition 2.

With respect to the other variables, fiscal pressure and unemployment rate tend to increase the composition bias towards current expenditures. The negative effect of fiscal pressure means that the lower the deficit, the more degree of freedom the incumbent has. As it is generally difficult to cut current expenditures, then the capital ones are sacrificed in case of tight fiscal situation. Conversely, *Regional GDP growth* has a positive impact on the bias towards capital expenditures. The rationale behind this positive effect is that economic expansion enlarges the room for maneuver by making additional resources available to fund structural investments.

The coefficient of the lagged dependent variable is positive and highly significant. This indicates the persistence of budget composition over time.

## 4.2 Robustness check

The above results are obtained in regressions in which I did not take into account the potential problem of endogeneity as regards the belief of the incumbent. However, it is reasonable to think that governments have incentives to bias their beliefs towards optimism. Precisely, Boylan (2008) and Bischoff and Gohout (2010) provide evidence that politicians tend to strategically overestimate revenues when their popularity, i.e. their objective probability of reelection, is low. A short-term bias in the budget composition may increase the incumbent's chances for reelection. Then, a reverse causality may exist here. Further, Brunnermeier and Parker (2005) show that people tend to make optimistic beliefs when this increases their well-being. Thus, the variable *Belief* is endogenous. Therefore, I tackle this problem using the win margin of victory in the previous election as instrument in GMM estimation. The results are presented in Table 2.

In column 4, I consider only the values of the PFE which corresponds uniquely to optimistic forecasts ( $Belief < 0$ ). Likewise, I use the positive values of the variable *Belief* in columns 5 of table 2. The Hansen test indicates that the win margin is a valid instrument.

The results confirm the persistence of the budget composition ratio. This is in line with the conventional wisdom according to which economic and fiscal variables show inertia.

Regarding the variable capturing strategic optimism, its coefficient is still positive and significant from column 1 to 4. For instance, in column 4 of table 2, a one percent increase in the strategic optimism (optimistic forecasts) could raise the budget composition ratio by about 0.19% in favor of current expenditures. Conversely, in column 5, the impact of



Table 2: Robustness check (GMM estimation)

|                       | (1)                   | (2)                   | (3)                  | (4)                  | (5)                  |
|-----------------------|-----------------------|-----------------------|----------------------|----------------------|----------------------|
|                       | M8                    | M9                    | M10                  | M11                  | M12                  |
| Lagged k              | 0.958***<br>(0.0370)  | 0.994***<br>(0.0362)  | 1.143***<br>(0.0933) | 0.440***<br>(0.108)  | 1.422***<br>(0.140)  |
| Belief                | 0.276***<br>(0.0519)  | 0.265***<br>(0.0573)  | 0.259***<br>(0.0616) | 0.194***<br>(0.0716) | -0.555***<br>(0.118) |
| Terms in Office       | 0.113<br>(0.188)      | 0.175<br>(0.193)      | 0.150<br>(0.204)     | -0.241<br>(0.295)    | 0.372<br>(0.270)     |
| Fiscal Pressure       | -0.468***<br>(0.0690) | -0.447***<br>(0.0748) | -0.550***<br>(0.111) | -0.231**<br>(0.100)  | -0.577***<br>(0.114) |
| Unemployment rate     | -0.0732<br>(0.133)    | 0.102<br>(0.124)      | 0.0213<br>(0.292)    | -0.336<br>(0.384)    | 0.449<br>(0.336)     |
| Regional GDP growth   | 0.120<br>(0.0962)     | 0.185*<br>(0.102)     | -0.141<br>(0.225)    | 0.807***<br>(0.178)  | 0.00413<br>(0.236)   |
| Government party      | -0.330<br>(0.481)     | -0.358<br>(0.485)     | 0.586<br>(1.755)     | -1.292<br>(1.361)    | -2.377<br>(1.535)    |
| Population growth     |                       |                       | -3.810<br>(2.423)    | 7.278***<br>(1.279)  | -4.098*<br>(2.438)   |
| Left wing             |                       |                       | 3.610<br>(4.882)     | -6.439*<br>(3.297)   | -1.129<br>(3.727)    |
| Year before elections | -1.433***<br>(0.469)  | -0.771<br>(0.494)     | 1.213<br>(1.567)     | -1.814*<br>(0.942)   | -0.389<br>(1.260)    |
| Election year         | 0.917**<br>(0.458)    | 1.891***<br>(0.421)   | 6.375**<br>(3.063)   | -5.873***<br>(1.448) | 7.066**<br>(2.921)   |
| Year after elections  |                       | 1.505***<br>(0.490)   | 0.964<br>(0.618)     | 2.567***<br>(0.582)  | 1.451**<br>(0.642)   |
| Constant              | 0.371<br>(2.241)      | -3.411<br>(2.170)     | -8.296**<br>(4.001)  | 19.35***<br>(5.606)  | -20.78***<br>(6.253) |
| N                     | 1045                  | 1045                  | 1045                 | 736                  | 309                  |
| HansenJ               | 15.0000               | 16.0000               | 16.0000              | 17.0000              | 16.0000              |
| HJ_Prob               | 0.5844                | 0.3357                | 0.5687               | 0.4875               | 0.8812               |

Standard errors in parentheses. Significance levels: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$

pessimistic forecasts on the budget structure is negative. This comforts the main prediction in proposition 2 which states that optimism bias negatively influences the budget composition towards capital expenditures. The rationale behind these results is simple. In case of optimistic forecasts, the fiscal year ends up with less resources than expected. Therefore, the government is constrained to cut some expenses. As current expenditures are difficult to cut down, long term investments are the ones to sacrifice. However, in case of pessimistic forecasts, the fiscal year ends up with unexpected additional resources. Policymakers who erroneously expect higher revenues tend to utilize this higher fiscal flexibility by increasing long-term investments. Hence, being conservative in fiscal forecasting reduces the short-term bias.

According to conventional wisdom, one would expect a left-wing government to increase the  $k$ -ratio. However, the results indicate that the variable left wing has a negative sign and is less significant. Veiga and Veiga (2007) did not find either a significant impact of ideology on the level of local investments in Portuguese municipalities.

Results in columns (4) tend to confirm the opportunistic cycle theory. Incumbent presidents of departmental councils reduce the ratio of capital to current expenditure one year before elections, and increase it at the beginning of their term. In fact, the  $k$ -ratio tends to diminish one year before departmental elections (-1.81%) and to increase just after elections (2.57%). This result is in line with, e.g., Goeminne and Smolders (2013) who find that the timing of elections matters for public infrastructure investments. The negative impact of fiscal pressure is also confirmed. The other control variables lose their significance.

## 5 Conclusion

One of the main predictions of dynamic political economy models is that electoral uncertainty and/or social polarization push governments to follow relatively short-sighted policies. This phenomenon, known as policy myopia, is harmful for investment in public infrastructures and thus, economic growth. This paper explores the role of optimism bias in curbing/exacerbating policy myopia.

The approach put forward in this paper derives from arguments developed in behavioral economics. Using the concept of optimal expectations, I establish a link between the budget structure and an incumbent's beliefs about her reelection chances. I make the assumption that policymakers are individuals who can be subjected to the same sources of cognitive bias that all individuals face, optimism bias in this case.

To operationalize the concept of optimism, I consider budget forecast errors. Indeed, that politicians distort fiscal forecasts for electoral reasons is a quite well-established result. Hence, I bring together the literature on behavioral economics and the political economy of fiscal forecasting. I contribute to the literature that expands the concept of optimism into models of political decisions.

Modeling inefficiency as a preference for non-productive activities with short-term benefits and eventually lower capital accumulation, I show that strategic optimism tend to increase this inefficiency. To answer the question in the title, I conclude that, strategic optimism proxied by the revenue forecast errors is detrimental to long term structural investments. This result lends support to the golden rule of fiscal forecasting: be conservative.

The empirical evidence is established using local level (French departments) data. The natural extension of this study will be to test the theoretical implication at the national level.

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## **1 Definition of variables and data sources**

Table A.1: Definition of variables and data sources

| Variable                              | Definition   | Source                        |
|---------------------------------------|--|-------------------------------|
| Capital to current expenditures ratio | Capital expenditures divided by Current expenditures   | Census of Ministry of Finance |
| Belief                                | Difference between actual and budgeted value of total revenue  |                               |
| Fiscal Pressure                       | Budget balance in % of total revenue   |                               |
| Year before elections                 | Dummy variable equal to 1 during the year before elections and 0 otherwise   | Ministry of Internal Affairs  |
| Election year                         | Dummy variable equal to 1 during the election year and 0 otherwise   |                               |
| Year after elections                  | Dummy variable equal to 1 during the year after elections and 0 otherwise  |                               |
| Terms in Office                       | Number of terms the President of the departmental council has been in office   |                               |
| Government party                      | Dummy variable equal to 1 when the President of the departmental council belongs to the same party as the French President |                               |
| Regional GDP growth                   | One year percent variation of Regional GDP   | INSEE                         |
| Unemployment rate                     | One year percent variation of unemployment   | INSEE                         |
| Population density                    | Ratio of departmental population to its surface  | INSEE                         |
| Population growth                     | One year percent variation of the number of inhabitants in the department  | INSEE                         |
| Left wing                             | Dummy variable equal to 1 if the President of the departmental council belongs to a left wing party and 0 otherwise        | Ministry of Internal Affairs  |

Sources: Institut National de la Statistique et des Études Économiques (INSEE); Census of Ministry of Finance and Ministry of Internal Affairs.

## 2 Descriptive statistics

Table B.2: Descriptive statistics

| Variable                             | Obs  | Mean  | Std. Dev. | Min    | Max   |
|--------------------------------------|------|-------|-----------|--------|-------|
| Capital to Current expenditure ratio | 1045 | 31.65 | 11.39     | 7.03   | 81.43 |
| Belief                               | 1045 | -3.26 | 6.29      | -29.78 | 27.68 |
| Year before elections                | 1045 | .18   | .39       | 0      | 1     |
| Election year                        | 1045 | .27   | .45       | 0      | 1     |
| Year after elections                 | 1045 | .27   | .45       | 0      | 1     |
| Left wing                            | 1045 | .53   | .5        | 0      | 1     |
| Terms in Office                      | 1045 | 1.37  | 1.2       | 0      | 10    |
| Government party                     | 1045 | .43   | .5        | 0      | 1     |
| Fiscal Pressure                      | 1045 | -.34  | 3.04      | -16.95 | 17.45 |
| Regional GDP growth                  | 1045 | 1.87  | 2.44      | -5.58  | 7.69  |
| Unemployment rate                    | 1045 | 8.91  | 1.88      | 4.2    | 16    |
| Population growth                    | 1045 | .68   | .95       | -1.4   | 6.31  |

Sources: Institut National de la Statistique et des Études Économiques (INSEE);  
Census of Ministry of Finance and Ministry of Internal Affairs.

## 3 Capital to Current expenditure ratio

Figure C.1: Capital to Current expenditure ratio (Single department, 2004-2015)

